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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,646	12/05/2005	Nicolas Goujon	14.0211-PCT-US	5778

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EXAMINER	
HUGHES, SCOTT A	
ART UNIT	PAPER NUMBER
3663	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,646	GOUJON ET AL.	
	Examiner	Art Unit	
	SCOTT A. HUGHES	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *20-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 7/1/2008 have been fully considered but they are not persuasive.

Applicant argues that Bevan does not teach a stress member because Bevan states that the metal strands "function as a strength member." Applicant argues that there would be no need to state this if the metal strands were what one of ordinary skill referred to as a "strength member." This argument is not persuasive because Bevan specifically uses the term stress member for the metal strands that surround the conductors. Further, Bevan's statement of the function of the metal strands provides further support for the metal strands meeting the applicant's claim limitation of a stress member because Bevan states that the metal strands perform the exact function of keeping the cable components from breaking when tension is applied to the cable that is the recognized function and purpose in the art of metal strands acting as stress members. Because Bevan specifically uses the term stress member to refer to the metal strands, and because Bevan's statement of their function describes the recognized function and purpose of metal strands that make up stress members, Bevan meets applicant's limitation of a stress member.

Although the stress members in Bevan are not independent of any lead, it is known in the art to provide stress members in seismic cables that are independent of the leads in order to protect the entire cable from breaking under tensile loads. Carpenter (4491939) teaches stress members that are independent of leads in a

seismic cable and teaches that these stress members function to protect the cable from tensions applied to the cable. It would have been obvious to modify Bevan to include stress members that are independent of the leads as is known in the art and taught by Carpenter in order to protect the entire cable from breaking or splitting under tensile loads.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 18 recite the limitation "independently of any signal lead." There is insufficient antecedent basis for this limitation in the claim. Applicant has claimed leads in independent claims 1 and 18, but has not claimed that these leads are limited to being signal leads before using the limitation "independently of any signal lead." The limitation "independently of any signal lead" implies that signal leads have already been claimed as part of the claimed structure. As applicant has not previously claimed that signal leads are present, there is a lack of antecedent basis for the limitation in the claims.

Claims 2-17 and 19 depend from claims 1 and 18 respectively, and are therefore also indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 and 7-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Oldervoll (US20030223822).

With regard to claim 1, Oldervoll discloses a seabed seismic cable (abstract). Oldervoll discloses a sensor module 102, 210 (Figs. 1C, 2, 3). Oldervoll discloses at least one first lead 206 to or from the sensor module (Fig. 2) ([0021-0024]). Oldervoll discloses a geophone housed in the sensor module ([0027]). Oldervoll discloses a stress member 202 extending continuously through the sensor module independently of any signal lead (Figs. 1C, 2, 3) ([0021-0024]). Oldervoll discloses a first sheath 200 enclosing the first lead and the stress member, the first sheath terminating at each end of the sensor module (Figs. 2-3) ([0023]). Oldervoll discloses at least one mechanical guide 208, 214 in the sensor module deflecting the stress member (Figs. 2-3) ([0024-0025]).

With regard to claim 2, Oldervoll discloses that the sensor module includes a hydrophone and accelerometer ([0027]).

With regard to claim 3, Oldervoll discloses that the sensor module houses electronics for converting analogue signals to digital signals ([0027]).

With regard to claim 4, Oldervoll discloses a second lead 204 extending continuously through the sensor module (Fig. 2).

With regard to claim 5, Oldervoll discloses that the second lead is attached to the stress member (Fig. 2) ([0021-0024]).

With regard to claim 7, Oldervoll discloses that the mechanical guide 208,214 deflects the second lead (Fig. 2) ([0021-00245]).

With regard to claim 8, Oldervoll discloses that the second lead is an electrical lead ([0021]).

With regard to claim 9, Oldervoll discloses a plurality of leads bundled into at least one bundle ([0021]).

With regard to claim 10, Oldervoll discloses that the bundled leads are enclosed by a protective covering ([0021]; [0023]) (Fig. 4).

With regard to claim 11, Oldervoll discloses that the leads are electrical leads ([0021]).

With regard to claim 12, Oldervoll discloses that the bundle is cylindrical in cross section (Fig. 4).

With regard to claim 13, Oldervoll discloses that the stress member is a steel rope ([0023]).

With regard to claim 14, Oldervoll discloses a pair of rings 214 disposed between the first sheet and the first lead and stress member against which the first sheath may be clamped to terminate the sheath (Figs. 2-3).

With regard to claim 15, Oldervoll discloses that the sensor module clamps the first sheath against the rings (Figs. 2-3).

With regard to claim 16, Oldervoll discloses that the first sheath comprises a jacket ([0021]; [0023]).

With regard to claim 17, Oldervoll discloses that the mechanical guide deflects the first lead (Figs. 2-3) ([0024-0025]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2 and 4-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bevan (6519395) in view of Barr (5724306) and Carpenter (4491939).

With regard to claim 1, Bevan discloses a seabed seismic cable (Column 1, lines 10-28). Bevan discloses a sensor module 24 and at least one lead 10-16, 102, 104 to or form the sensor module (Column 2, Lines 10-65) (Figs. 2A-2C, 4) (Column 2, Line 48 to Column 4, Line 16). Bevan discloses a stress member 20 (with cables 10, 11, and 14 that are bypass cables and extend continuously past the sensor portion) extending

continuously through the sensor module (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B). Bevan discloses a first sheath 17 enclosing the first lead and the stress member, the first sheath terminating at each end of the sensor module (Figs. 1A-1C, 2A-2C, 4) (Column 2, Lines 10-54). Bevan discloses at least one mechanical guide 34, 36 in the sensor module deflecting the stress member (Column 2, Line 55 to Column 3, Line 30) (Figs. 2A-2C. 3A-3D) (end caps deflect bypassing cables that include stress members). Bevan does not disclose that the stress member extends independently of any signal lead. Carpenter teaches a seismic cable, and teaches that strength members (Kevlar members) extend through the sensor module of the cable independently of any signal leads in the cable through the use of spreaders that surround the sensor module (Figs. 1-2, 4-6) (Column 3, Line 5 to Column 4, Line 12). It would have been obvious to modify Bevan to include strength members that are independent of leads and that extend through the sensor module as taught by Carpenter in order to absorb tensile loads on the seismic cable as a whole. Bevan discloses a hydrophone housed in the sensor module, but not a geophone (Columns 2-4). Barr teaches an ocean bottom seismic cable including sensor units (Column 1 Line 5 to Column 2, Line 47; Column 4, Lines 1-10). Barr teaches that both hydrophones and geophones are used in ocean bottom cables (Column 1 Line 5 to Column 2, Line 47; Column 4, Lines 1-10). It would have been obvious to modify Bevan to include a geophone in the sensor unit as taught by Barr in order to be able to attenuate multiples in the data received.

With regard to claim 2, Bevan discloses that the sensor module includes a hydrophone (Column 4, Lines 1-16).

With regard to claim 4, Bevan discloses a second lead (cables 10, 11, 14) extending continuously through the sensor module (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B).

With regard to claim 5, Bevan discloses that the second lead is attached to the stress member (Column 2, Lines 10-34).

With regard to claim 6, Bevan discloses a second sheath 22 enclosing the at least one second lead and the stress member (Column 2, Lines 10-34).

With regard to claim 7, Bevan discloses that the mechanical guide 34, 36 deflects the second lead (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B).

With regard to claim 8, Bevan does not disclose that the second lead is an electrical lead. Bevan discloses that the leads are optical leads to the seismic sensors (hydrophones). Barr teaches that either electrical or optical leads can be used for hydrophones and geophones in seismic cables (Column 1, Lines 49-64). Therefore, it would be obvious to modify Bevan to use electrical instead of optical leads from the sensors as taught by Barr because there would be a reasonable expectation of success as they are both known to be used interchangeably in the art.

With regard to claim 9, Bevan discloses a plurality of leads bundled into at least one bundle (Fig. 1A) (Column 2, Lines 10-34).

With regard to claim 10, Bevan discloses that the bundled leads are enclosed by a protective covering (Column 2, Lines 10-34).

With regard to claim 11, Bevan does not disclose that the leads are electrical leads. Bevan discloses that the leads are optical leads to the seismic sensors (hydrophones). Barr teaches that either electrical or optical leads can be used for hydrophones and geophones in seismic cables (Column 1, Lines 49-64). Therefore, it would be obvious to modify Bevan to use electrical instead of optical leads from the sensors as taught by Barr because there would be a reasonable expectation of success as they are both known to be used interchangeably in the art.

With regard to claim 12, Bevan discloses that the bundle is cylindrical in cross section (Figs. 1A, 1C).

With regard to claim 13, Bevan discloses that the stress member is a steel rope (metal strands) (Column 2).

With regard to claim 14, Bevan discloses a pair of rings disposed between the first sheet and the first lead and stress member against which the first sheath may be clamped to terminate the sheath (see rings in Figs. 2A-C, 4).

With regard to claim 15, Bevan discloses that the sensor module clamps the first sheath against the rings (see rings in Figs. 2A-C, 4) (Column 2).

With regard to claim 16, Bevan discloses that the first sheath comprises a skin, jacket, and extrusion matrix (Column 2, Lines 1-34).

With regard to claim 17, Bevan discloses that the mechanical guide deflects the first lead (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B).

With regard to claims 18 and 19, Bevan discloses a seabed seismic cable (Column 1, lines 10-28). Bevan discloses a sensor module 24 and at least one lead 10-

16, 102, 104 to or form the sensor module (Column 2, Lines 10-65) (Figs. 2A-2C, 4) (Column 2, Line 48 to Column 4, Line 16). Bevan discloses a stress member 20 (with cables 10, 11, and 14 that are bypass cables and extend continuously past the sensor portion) extending continuously through the sensor module (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B). Bevan does not disclose that the stress member extends independently of any signal lead. Carpenter teaches a seismic cable, and teaches that strength members (Kevlar members) extend through the sensor module of the cable independently of any signal leads in the cable through the use of spreaders that surround the sensor module (Figs. 1-2, 4-6) (Column 3, Line 5 to Column 4, Line 12). It would have been obvious to modify Bevan to include strength members that are independent of leads and that extend through the sensor module as taught by Carpenter in order to absorb tensile loads on the seismic cable as a whole. Bevan discloses a first sheath 17 enclosing the first lead and the stress member, the first sheath terminating at each end of the sensor module (Figs. 1A-1C, 2A-2C, 4) (Column 2, Lines 10-54). Bevan discloses a hydrophone housed in the sensor module, but not a geophone (Columns 2-4). Barr teaches an ocean bottom seismic cable including sensor units (Column 1 Line 5 to Column 2, Line 47; Column 4, Lines 1-10). Barr teaches that both hydrophones and geophones are used in ocean bottom cables (Column 1 Line 5 to Column 2, Line 47; Column 4, Lines 1-10). It would have been obvious to modify Bevan to include a geophone in the sensor unit as taught by Barr in order to be able to attenuate multiples in the data received. Bevan and Barr do not disclose that the leads are deployed with an SZ winding that changes in the sensor

module. Carpenter teaches that it is known to use an SZ winding and teaches modifying this winding at a sensor location (Column 2, Line 67 to Column 3, Line 65 (Figs. 1-2). It would have been obvious to modify Bevan to include the different SZ windings for the conductors depending on whether they are at a sensor in order to be able to loosen the conductors to take away the strain of being placed around a sensor.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bevan (6519395) in view of Barr (5724306) and Carpenter as applied to claims 1 and 4-19 above and further in view of Stephen (6430105).

With regard to claim 2, Bevan does not disclose that the sensor module includes an accelerometer, tilt meter and magnetometer. Bevan does disclose a hydrophone as a seismic sensor (Column 2; Column 4, Lines 1-16). Stephen teaches that it is known to include accelerometers, tilt meters, and magnetometers in ocean bottom seismic cables in order to be able to determine the orientation of the cable for purposes of data processing (abstract; Columns 4-5). It would have been obvious to modify Bevan to include accelerometers, tilt meters, and magnetometers as taught by Stephen in order to determine the orientation of the sensor units to rotate the signals during data processing.

With regard to claim 3, Stephan teaches that ocean bottom cables include electronics for converting analog to digital signals when the sensors create analog signals (Column 2). It would have been obvious to modify Bevan to include an analog

to digital converter as taught by Stephan in order to change the signals to digital signals for processing.

Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oldervoll as applied to claims 1-5 above, and further in view of Bevan (6519395).

With regard to claim 6, Oldervoll does not disclose a second sheath enclosing the second lead and the stress member. Bevan teaches and ocean bottom cable with signal leads and stress members attached to sensor modules (Figs. 2A-2C). Bevan teaches a second sheath 22 enclosing the at least one second lead and the stress member (Column 2, Lines 10-34). It would have been obvious to modify Oldervoll to include a second sheath surrounding the second lead and the stress member that extend continuously through the sensor module as taught by Bevan in order to protect the lead and stress member from the environment inside the housing.

Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oldervoll (US20030223822) in view of Carpenter (4491939).

With regard to claims 18-19, Oldervoll discloses a seabed seismic cable (abstract). Oldervoll discloses a sensor module 102, 210 (Figs. 1C, 2, 3). Oldervoll discloses at least one lead 204, 206 to or from the sensor module (Fig. 2) ([0021-0024]). Oldervoll discloses a geophone housed in the sensor module ([0027]). Oldervoll discloses a stress member 202 extending continuously through the sensor module independently of any signal lead (Figs. 1C, 2, 3) ([0021-0024]). Oldervoll discloses a

sheath 200 enclosing the leads and the stress member, the first sheath terminating at each end of the sensor module (Figs. 2-3) ([0023]). Oldervoll does not disclose that the leads are deployed with an SZ winding that changes in the sensor module. Carpenter teaches that it is known to use an SZ winding and teaches modifying this winding at a sensor location (Column 2, Line 67 to Column 3, Line 65 (Figs. 1-2). It would have been obvious to modify Oldervoll to include the different SZ windings for the conductors depending on whether they are at a sensor in order to be able to loosen the conductors to take away the strain of being placed around a sensor.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT A. HUGHES whose telephone number is (571)272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. A. H./
Examiner, Art Unit 3663

/Jack W. Keith/
Supervisory Patent Examiner, Art Unit 3663